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Analysing the Relation between Ownership
Structure and Performance in Bangladesh**

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ABSTRACT

This paper models the managerial (board) ownership and financial performance relationship in Bangladesh using a simultaneous equations approach. This approach is deemed to be the most appropriate methodology to control for the potential endogenous relationship between managerial (board) ownership and performance. Consistent with recent literature employing this method of analysis in developed markets, we document a ‘reverse-way’ causality of relationship between them in Bangladesh listed firms. Using an unbalanced/random pooled sample of 660 firm-years, our results suggest that board ownership does not have a significant impact on performance as measured by Tobin’s Q or Return on Assets (“ROA”). However, performance does appear to have a significant negative impact on board ownership. With few exceptions, other corporate governance and control variables have effects on performance and ownership consistent with both theoretical and empirical expectations. These results imply that despite huge institutional and governance differences between Bangladesh, an emerging market economy, and developed countries (US, UK, Japan, Germany) there is nevertheless similarity in governance mechanisms, in particular, ‘internal governance mechanisms’ and agency problems.

Key Words: Emerging markets, Corporate Governance, Board Ownership, Financial Performance, Endogeneity, Simultaneous Equations, ‘Reverse-Way’ Causality, Bangladesh

JEL classification: G32, G34

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1. Introduction

The nature of the relation between managerial ownership and financial performance is a pivotal issue for governance. Some corporate governance research studies support the existence of a linear relationship between ownership and performance (Berle and Means, 1932; Jensen and Meckling, 1976; Lichtenberg and Pushner, 1992; Mehran, 1995), while other studies support a non-linear or a non-monotonic relationship (Morck et al., 1988; McConnell and Servaes, 1990, 1995; Chen et al., 1993; Short and Keasey, 1999). Both sets of studies assumed a ‘uni/mono-directional’¹ relationship based on ‘exogeneity’ of ownership. This notion was questioned by Demsetz (1983) and Demsetz and Lehn (1985), who argue that ownership structure is endogenously related to firm performance with no direct relationship expected. The scope of this debate has been broadened by more recent empirical studies. These studies present evidence of either ‘reverse-way’² or ‘bi-directional’³ relationships between managerial ownership and financial performance using a ‘simultaneous equations approach’ to control for endogeneity (Chung and Pruitt, 1996; Loderer and Martin, 1997; Cho, 1998; Demsetz and Villalonga 2001; Bohren and Odegaard, 2001) and estimate the relationship using two- stage least square (2-SLS) or three-stage least square (3-SLS).

To date the research has been conducted in the context of developed countries, most notably the United States. Few studies have been set in emerging market economies, with none focusing on Bangladesh. There remain huge institutional differences, including the mechanisms of corporate governance, between Bangladesh and developed economies. This study investigates the nature of the relation between management (board) ownership and financial performance as measured by Tobin’s Q and ROA using a simultaneous equations approach (2-SLS regression) for Bangladesh listed firms.

The remainder of this paper is structured as follows. Section- 2 examines briefly the literature that applies a simultaneous equations approach to investigate the ownership-performance relationship. The governance mechanisms operating in Bangladesh are

¹ Causality of relationship runs from ownership structure to financial performance.

² Causality of relationship runs from financial performance to ownership structure.

³ Causality of relationship runs simultaneously in both directions i.e. from ownership to performance and from performance to ownership.

compared to those of developed economies in Section- 3. Section-4 details the empirical method adopted in the paper, while Section-5 describes the results of the empirical testing. Finally, Section- 6 provides the conclusion of the paper.

2. Literature Review

Most research on the relation between corporate governance (ownership) and financial performance is rooted in an agency framework. It is argued that the ‘separation of ownership from control’ for a corporate firm creates an agency problem that results in conflicts between shareholders and managers (Jensen and Meckling, 1976; Shleifer and Vishny, 1997). The interests of other investors can be protected through contractual relations with the company, leaving shareholders as the ‘residual’ claimants whose interests can adequately be protected only through the institutions of corporate governance (Shleifer and Vishny, 1997).

Since ‘ownership structure’ of the firm remains the basis for exercising power and control over corporate entities under the condition of ‘market imperfection’ and/or ‘incomplete nature of contracts’, the problem of agency costs need to be addressed according to the ‘ownership structure’ of the corporate firm to ensure more efficient financial performance. For ‘publicly traded firm with widely dispersed shareholdings’, the minority shareholders’ challenge is to control the performance of dominating managers/board. Whereas, for ‘closely held firms with a controlling shareholder’ and a minority of outside shareholders or a ‘publicly traded company’ dominated by a ‘controlling shareholder’, the challenge is how outside shareholders can prevent the controlling shareholder from extracting excess benefits at the costs of minority shareholders’ economic rights (World Bank, 1999). Therefore, to ensure optimum performance or to minimise agency costs, ownership structure is considered to be one of the core governance mechanisms along with others such as, debt structure, board structure, incentive-based compensation structure, dividend structure, and external auditing.

In the literature, there are alternative views on the relationship between ownership and firm performance. One approach refers to an exogenous optimal ownership structure and other governance mechanisms that collectively maximize firm value. Another approach assumes that ownership structure, other governance mechanisms and performance are endogenously determined in affecting each other, which implies that

firms choose a combination of ownership structure and other governance mechanisms to maximize performance but recognising that ownership and the other governance mechanisms are themselves affected by performance. Accordingly, empirical studies addressing the relationship between ownership structure and performance provide two opposite and contradictory views on the importance of ownership.

Assuming that ownership is exogenous, and applying ordinary least squares, one group of research studies reports evidence of a non-linear or non-monotonic relationship between ownership and firm performance with the other group of studies assumes that ownership and performance are endogenous, apply two-stage or three-stage least squares and find either no evidence of a systematic relationship between these variables or reverse causality or bi-directional relationships. That is, performance determines ownership structure, rather than ownership structure being a determinant of firm performance.

This former group of studies supports either the 'alignment of interest' hypothesis (Berle and Means, 1932; Jensen and Meckling, 1976; Hart and Holmstrom, 1987; Morck et al., 1988) or the 'entrenchment' hypothesis (Demsetz, 1983; Fama and Jensen, 1983; Morck et al., 1988), or both. The latter group of studies supports the 'natural selection' hypothesis (Demsetz, 1983; Demsetz and Lehn, 1985; Kole and Lehn, 1997) or the 'mutual neutralization' hypothesis (Jensen, 1986). Some of the studies that identify a recursive/reverse causality relationship argue for the 'reward' hypothesis (Kole, 1996), the 'insider-reward' hypothesis (Cho, 1998) or the 'insider-investment' hypothesis (Loderer and Martin, 1997).

In the empirical research, Loderer and Martin (1997) consider Tobin's Q and managerial ownership as endogenous in a simultaneous systems framework and use acquisitions by bidding firms data for two years to investigate whether executive stock ownership boosts firm performance. Using 2-SLS regressions, they find no evidence that larger managerial ownership boosts performance. In contrast, performance has a negative effect on management stockholdings. Cho (1998) also confirms a reverse-way causality relationship between ownership and performance. He focuses on the hypothesis that insider ownership affects investment (capital expenditure, R&D), which in turn affects corporate performance (Tobin's Q). Controlling for endogeneity in simultaneous equations, he uses cross-sectional 2-SLS

regressions and finds that investment positively affects corporate value, which in turn affects insider ownership.

Demsetz and Villalonga (2001) also address endogeneity concerns about the performance-ownership relationship by using ‘simultaneous regression’ (2-SLS) method. Their 2-SLS estimates show no statistical relationship between managerial ownership or top 5 shareholders and performance, rather a significant negative influence of performance (Tobin’s Q or ROA) on managerial ownership or top 5 shareholders. That is, as found in Loderer and Martin (1997), management seems to hold fewer shares when a firm is doing well. Also comparing the degree of endogeneity of management shareholdings and top 5 shareholders shareholdings, Demsetz and Villalonga (2001)’s 2-SLS model shows that Tobin’s Q has a stronger effect on managerial ownership than that of log top 5 shareholders shareholdings.

Bohren and Odegaard (2001) conduct a similar study using Norwegian data. They present evidence that performance drives insider ownership but not vice versa, consistent with the findings of prior studies. Fernandez and Gomez (2002) also estimate simultaneous equations using a pooled sample of Spanish data. Their findings show that managerial ownership influences on firm performance (market to book value ratio or ROA) do not hold in 2-SLS estimates. Similarly, Agrawal and Knoeber (1996) and Firth et al. (2002) construct a complex system of simultaneous equations, respectively for US and China. Both studies find no evidence that ownership influences firm performance.

3. Bangladesh Institutional Setting

Bangladesh is an emerging economy so corporate governance systems are arguably less evolved than the governance systems of developed countries such as Anglo-American countries, Germany and Japan. Emerging markets differ substantially from developed countries in their institutional, regulatory and legal environments (Prowse, 1999). The McKinsey Emerging Market Investor Opinion Survey 2001 highlights that the ‘emerging market corporate governance model’ (i.e. the control model of having concentrated ownership, insider boards, limited disclosure, inadequate minority shareholder protection, family/bank/public investment and limited takeover market) is markedly different from that prevailing in the US, UK and other English-speaking countries (i.e. the market model of having disperse ownership, non-executive majority

boards, high disclosure, shareholder equality, institutional investment and active takeover market). Bangladesh is not an exception to this.

Bangladesh experienced centuries of economic neglect under colonial rule, which severely contributed to the poor institutional and corporate base. The development of corporate governance mechanisms (i.e. institutional, regulatory and legal environment) is a product of the political, cultural and historical characteristics of a country (Prowse, 1999). Although Bangladesh inherited 'English common-law' and market-based systems, it lacks an active market for corporate control, strong incentive contracts for management, outside directors etc. Ownership is typically concentrated. Problems relate to delays or inefficiency or differential treatment in enforcing existing laws and securing outcomes. A further problem for emerging economies, such as Bangladesh, lies in the perceived presence of market anomalies and malpractices (e.g. unavailability of information to investors, insider control and collusion to manipulate stock prices in the market).

Private sector firms in Bangladesh emphasize stockholders' interests, similar to Anglo-American firms, rather than stakeholders' interests as do Japanese and German firms. Besides, unlike the institution majority owners of Japanese and German firms, individual majority owners or founder-family owners dominate private listed firms in Bangladesh. Therefore, institutional activism occurs less in Bangladesh than under the Japanese-German systems. Again, comparable to Japanese and German firms, most of the listed firms in Bangladesh rely heavily on either bank or public finance for raising investment funds, and less on direct market sources. Unlike the Anglo-American countries, the market for takeovers is weak and inadequately developed in Bangladesh. In short, corporate governance systems in Bangladesh are closely based on family and insider-dominated firms.

Bangladesh has weak, relatively unsophisticated, legal and regulatory frameworks and enforcement mechanisms to protect minority shareholders. The courts of countries with emerging economies are poorly equipped to oversee corporate affairs (La Porta et al. 1998; 1999). Lacks of transparency and accountability are not unusual in corporate firms in Bangladesh, and is similar to other emerging East and South East Asian countries (Prowse, 1999). Similar to other emerging economies the Bangladesh market is dominated by small and medium-sized firms with highly concentrated

ownership. In most firms the major large shareholders are family groups. For a few firms government is the major shareholder. Consequently, most companies have executive directors, CEO and chairman from the controlling family. This creates opportunities for controlling shareholders to expropriate wealth from outside shareholders (Shleifer and Vishny, 1997). Given these institutional features, Bangladesh corporate firms face high agency costs derived from the conflict between large owners and minority shareholders (Shleifer and Vishny, 1986), rather than from the conflict between professional managers and shareholders (Jensen and Meckling, 1976).

4. Methodology and Data

4.1 Methodology

Prior literature suggests that management ownership has no impact on firm performance, while firm performance has either a positive or negative influence on ownership. Given the potential simultaneity of ownership and performance variables, it is reasonable to adopt a simultaneous equations model (2-SLS regression) to address the endogeneity issue. The simultaneous equation system consists of two equations with ownership and performance as the endogenous variables and includes control variables for alternative governance mechanisms and certain other firm characteristics. Several of the control variables are common to the board ownership and firm performance equations. These are institutional shareholdings, CEO tenure, CEO-chair duality, debt ratio and the investment ratio. Additional variables included in the performance equation are board salary, DPS, CEO specific dummy, Big-4 affiliated audit dummy, firm size, advertisement ratio and earnings volatility. The board shareholdings equation includes public and government shareholdings, board size, board salary, firm age, firm size, firm-level risk and firm liquidity ratio as the alternative governance and other control variables. The equations are:

Firm Performance Equation (Eqn. 1)

$$\text{LOG-TOBIN'S } Q_i = \beta_0 + \beta_1 \text{BD-SHARE}_i + \beta_2 \text{INST-SHARE}_i + \beta_3 (\text{INST-SHARE}_i)^2$$

Or

$$\begin{aligned} \text{ROA}_i &+ \beta_4 \text{NON-EXE-DIR-Ratio}_i + \beta_5 \text{BD-SAL}_i (\text{Spline-1}) + \beta_6 \text{BD-} \\ &\text{SAL}_i (\text{Spline-2}) + \beta_7 \text{BD-SAL}_i (\text{Spline-3}) + \beta_8 \text{CEO-DUM}_i + \\ &\beta_9 \text{CEO-CHAIR-DUAL-DUM}_i + \beta_{10} \text{CEO-TENURE}_i + \beta_{11} \text{BIG-} \end{aligned}$$

$$4 \text{ AUDIT-DUM}_i + \beta_{12} \text{ DPS}_i + \beta_{13} \text{ DEBT-Ratio}_i + \beta_{14} \text{ LOG-} \\ \text{SALES}_i + \beta_{15} \text{ INVEST-Ratio}_i + \beta_{16} \text{ ADVER-Ratio}_i + \beta_{17} \\ \text{EARN-VOLATILE}_i + \varepsilon_i$$

Board Ownership Equation

(Eqn. 2)

$$\text{BD-SHARE}_i = \beta_0 + \beta_1 \text{ Performance}_i + \beta_2 \text{ INST-SHARE}_i + \beta_3 \text{ PUB-SHARE}_i + \\ \beta_4 \text{ GOV-SHARE}_i + \beta_5 \text{ BD-SIZE}_i + \beta_6 \text{ BD-SAL-Ratio}_i + \beta_7 \text{ CEO-} \\ \text{CHAIR-DUAL DUM}_i + \beta_8 \text{ CEO-TENURE}_i + \beta_9 \text{ FIRM-AGE}_i + \beta_{10} \\ \text{DEBT-Ratio}_i + \beta_{11} \text{ LOG-ASSETS}_i + \beta_{12} \text{ INVEST-Ratio}_i + \beta_{13} \\ \text{PROFIT-VOLATILE}_i + \beta_{14} \text{ LIQUIDITY-Ratio}_i + \varepsilon_i$$

The variables included in these models are those commonly included in prior empirical studies on governance (ownership) and performance relationships that are relevant to an emerging-market economy such as Bangladesh. A brief sketch of the variable definitions and the expected sign of association with the dependent variables are presented in Figure 1. The empirical regression models analysed here has been tested and seems okay for ‘multi-collinearity’, ‘serial or auto-correlation’, ‘heteroskedasticity’, ‘stability’, ‘outliers’, goodness of fit and/or ‘normality’ test of the model.

Figure 1
Variable Definition

Performance Equation: (LOG TOBIN'S Q or ROA as predicted variable)

Variable label	Variable	Variable definition	Predicted sign
<u>Endogenous variable:</u>			
BD-SHARE	Board ownership	Board shareholding as a % of total outstanding shares	+/-
<u>Explanatory variables:</u>			
BD-SAL1	Board salary (Spline – 1)	Tk 00-0.15 million	+/-
BD-SAL2	Board salary (Spline – 2)	Tk 0.15 million-0.75 million	+/-
BD-SAL3	Board salary (Spline – 3)	Above Tk 0.75 million	+/-
INST-SHARE	Financial institutional ownership	Institutional shareholding as a % of total outstanding shares	+/-
(INST-SHARE) ²	Institutions ownership squared		+/-
NON-EXE-DIR-Ratio	Non-executive directors' ratio	Ratio of non-executive directors ÷ all directors	+
CEO-DUM	CEO dummy	Owner or founder acts as CEO = 1	-
CEO-CHAIR-DUM	CEO-Chair duality dummy	CEO acts as Chairman = 1	-
CEO-TENURE	CEO tenure	No. of years served as CEO	-
DPS	Dividend per share	Total dividend declared ÷ total outstanding shares	+
BIG-4 AUDIT-DUM	BIG-4 affiliated dummy	BIG-4 affiliated audit firm = 1	+
DEBT-Ratio	Debt ratio	Debt ÷ total assets	+
LOG-SALES	Firm size	Log total sales	-
INVEST-Ratio	Investment ratio	Capital expenditure ÷ total assets	+
ADVER-Ratio	Advertisement ratio	Advertisement expenditure ÷ total assets	+
EARN-VOLATILE	Firm-level risk	SD of operating earnings ÷ total sales	-

Ownership Equation: (BD-SHARE as predicted variable)

Variable label	Variable	Variable definition	Predicted sign
<u>Endogenous variable:</u>			
LOG TOBIN'S-Q	Proxy for Tobin's Q (simple)	(Market value of equity plus book value of debt) ÷ book value of total assets	+/-
ROA	Return on assets	EBIT ÷ book value of total assets	+/-
<u>Explanatory variables:</u>			
INST-SHARE	Financial institutional ownership	Institutional shareholding as a % of total outstanding shares	-
PUB-SHARE	Public ownership	Minority shareholding as a % of total outstanding shares	-
GOV-SHARE	Government ownership	Government shareholding as a % of total outstanding shares	-
BD-SIZE	Board size	Number of directors in the board	+
BD-SAL-Ratio	Board salary ratio	Directors' salary ÷ operating expense	-
CEO-CHAIR-DUM	CEO-Chair duality dummy	CEO acts as Chairman = 1	+
CEO-TENURE	CEO tenure	No. of years served as CEO	+
FIRM-AGE	Firm age	No. of years incorporated as a public limited company	-
DEBT-Ratio	Debt ratio	Debt ÷ total assets	+
LOG-ASSETS	Firm size	Log total assets	-
INVEST-Ratio	Investment ratio	Capital expenditure ÷ total assets	+
PROFIT-VOLATILE	Firm-level risk	SD of return on equity (ROE)	+
LIQUIDITY-Ratio	Liquidity ratio	Cash flow ÷ total assets	+

4.1.1 Financial performance equation

Two alternate measures of firm performance are employed in this study; Tobin's Q and Return on Assets (ROA). Tobin's Q is used as a forward-looking market/hybrid measure of financial performance, whereas ROA is a backward-looking accounting measure of performance. ROA is the aggregate rate of return on capital employed from both equity and debt holders and is measured by the ratio of earning before interest and tax (EBIT) to book value of the firm's total assets or capital employed. Tobin's Q reflects firm performance as an indicator of the value of a firm as a going concern relative to the sum of the replacement costs of the individual assets employed by the firm. Lindenberg and Ross (1981) outline the theoretical Tobin's Q as follows.

$$Q = \frac{MV_t}{RC_t} \approx \frac{MVD_t + MVCS_t + MVPS_t}{BVTA_t + (RCFA_t - BVFA_t) + (RCINV_t - BVINV_t)} \text{ Where,}$$

MV_t is the market value of the firm's outstanding financial claims, RC_t is the replacement cost of production capacity, MVD_t is the market value of debt, $MVCS_t$ is the market value of common stock, $MVPS_t$ is the market value of preferred stock, $BVTA_t$ is the book value of total assets, $(RCFA_t - BVFA_t)$ is replacement cost of fixed assets minus its book value and $(RCINV_t - BVINV_t)$ is replacement cost of inventories minus its book value.

In this study, measurement problems preclude the adoption of the theoretical Tobin's Q. Similar to Chung and Pruitt (1994) we adopt the approximation adopted for this study is:

$$\text{Simple or Approximate } Q = (MVE + DEBT) / BVTA$$

Here, MVE is the firm's market value of equity or capitalization (product of the firm's market share price and the number of outstanding common shares), DEBT is the book value of the firm's total debts (sum of short-term debt and long-term debt) and BVTA is the book value of total assets of the firm (sum of short and long-term assets). This simple Q-value deviates from the theoretical Q in using book value to measure replacement cost of total assets and also using the book value of debt. Fernandez and Gomez (2002) states that the value of the coefficient of determination (R^2) does not differ significantly in Fernandez et al. (1998) study whether the Tobin's Q of Lindenberg and Ross (1981) or its approximation, as proposed by Chung and

Pruitt (1994), is used. However, this simple/approximate Tobin's Q is used here in its log-form to ensure its distribution as normal and avoid outliers.

The primary variable of interest in Eq. (2), BD-SHARE, is the other endogenous variable in the simultaneous equations system. INST-SHARE and (INST-SHARE)² denote the shareholding of financial institutions and its squared value, respectively. Xu and Wang (1999) find support for a quadratic relation between institutional ownership and firm performance. They find that for a sample of Chinese firms, firm value decreases as institutional ownership increases up to a low level and then begins to increase as the institutional ownership continues to increase. We expect a similar relation to be present in Bangladesh if this U-shaped non-linear relation between institutional shareholding and firm performance is a characteristic of emerging markets.

The NON-EXE-DIR-Ratio is the ratio of non-executive directors (outsiders) to total number of board of directors. Hermalin and Weisbach (1988) report outsider directors are more likely to join the board after a period of poor firm performance. While Prevost et al. (2002) find evidence that outside directors have a positive impact on performance, Agrawal and Knoeber (1996) find support for the contention that outside directors have negative effect. On the other hand, Hermalin and Weisbach (1991), Mehran (1995) and Firth et al. (2002) find no effect of outside directors on firm performance. Considering the mixed findings, we expect a positive relation for NON-EXE-DIR-Ratio in the performance equation assuming that non-executive directors exhibit some 'independence' from top management and their interests are aligned with minority shareholders.

The next independent variable is board salary (BD-SAL), as a measure of an alternative mechanism to control agency costs. Mathiesen (2002) presents evidence of a non-linear relation between director salary and firm performance. In view of the potential for a nonlinear relation between board salary and performance, we use a piecewise specification for the board salary variable similar to the one used by Mathiesen (2002). Specifically, we divide board salary levels into three arbitrary regions/splines ranging board salary from Tk. 00 to Tk. 0.15 million, Tk. 0.15 to Tk. 0.75 million and over Tk. 0.75 million. While there is no theoretical basis for

choosing these thresholds, still the above splines (Tk. 0.15 and Tk. 0.75 million) are equitably distributed in our sample than others and represent the model best.

Another three variables we include are related to the CEO who often comes from a dominant owner family or is the founder of the firm. CEO-DUM (shareholder/sponsor-CEO) is a dummy variable to test the influence of ‘entrepreneurial talent’: 1 if the owner director acts as CEO and 0 otherwise. CEO-CHAIR-DUAL-DUM (CEO-chairman duality) is also a dummy variable: 1 if the CEO also acts as the chairman of the board and 0 otherwise. CEO-TENURE is the human capital employed by CEO in the firm in terms of years. Morck et al. (1988) provide evidence that firm performance reduces if the firm founder is one of top 2 officers in old firms, whereas for younger firms, founder involvement is performance enhancing. Holderness and Sheehan (1988) find that majority shareholders who are directly involved in firm management are beneficial. This is contrary to Chung and Pruitt (1996) who support a negative relation between founder CEO and firm performance and Agrawal and Knoeber (1996) and Mishra et al. (2001) who find no significant relation. Here, we expect an inverse relationship between these three CEO related variables and firm performance as they represent the controlling dominance of family or founder over the firm’s overall activity and that family owners take care of the interest of the families only at the costs of other shareholders.

In addition to the above governance variables, we also include some variables control for a firm’s accounting and auditing quality and financial policy decisions. BIG-4 AUDIT-DUM (Big-4 affiliated audit firm) is a dummy variable: 1 if the firm’s audit firm is affiliated with a Big-4 audit firms and 0 otherwise. Mitton (2002) contends that higher disclosure quality is associated with higher returns for the firm. He also finds a positive significant relation between having a Big-6 auditor and firm stock performance. Similarly, we anticipate a positive relation between Big-4 affiliated audit firm and firm performance. Again, DPS (dividend per share) is a further variable of interest as it becomes a value-creating governance mechanism (Bohren and Odegaard, 2001). Dividend may be an alternative means of reducing agency costs (Easterbrook, 1984). The idea is that management discretion is restricted if the firm pays earnings out as dividends rather than retains it (Jensen, 1986). Bhattacharya (1979) and Miller and Rock (1985) consider optimal dividend payments as signals of

future profitability. We hypothesize a positive association with performance as we expect management to use dividends as a signal of performance to the minority shareholders.

DEBT-Ratio is denoted as the percentage of total debt to total assets of the firm. Debt may resolve agency conflict by reducing managerial discretion to consume excessive perquisites or other non-optimal activities (Jensen and Meckling, 1976). Debt holders may exert strong influence over the operation of the firm (Stiglitz, 1985) and management/board may use it as a signal of bonded commitment to meet the debt repayment (Grossman and Hart, 1982; Jensen, 1986). Empirically, Demsetz and Villalonga (2001) and Bohren and Odegaard (2001) provide evidence of a negative influence of financial leverage on performance, whereas Xu and Wang (1999) report a positive influence. Applying a quadratic model, Mathiesen (2002) indicates a U-shaped relation between debt and performance i.e. coefficient of debt is significantly negative to performance, whereas coefficient of squared debt is significantly positive. On the other hand, Keasey et al. (1994), Holderness et al. (1999), and Short and Keasey (1999) find no effect of debt. Considering the mixed nature of findings, we expect a positive relation between debt and performance in Bangladesh.

Finally, we include several control variables that may have a significant impact on performance. LOG-SALES is employed to control for differences in firm size. Previous literature documents an inverse relation between firm size and performance. INVEST-Ratio is denoted by capital expenditure scaled by total assets. ADVER-Ratio is advertising expenditure as a proportion of total assets. Both the investment and advertising ratio are discretionary expenditure, which proxy for the future growth of the firm⁴. A positive association is expected between both variables and performance. EARN-VOLATILE is the business risk measured by the standard deviation of operating income scaled by sales. The assertion is that firm-specific risk is related to instability in the firm's environment and a noisier environment may have a negative impact on firm performance. Accordingly, a negative relation is expected.

⁴ Empirical studies use R&D as a discretionary expenditure. We can't use R&D expenditure for unavailability of data. It is rarely incurred in most of the listed firms in Bangladesh except a few multinational and joint-venture firms.

4.1.2 Board ownership equation

The endogenous dependent variable, BD-SHARE, is defined as the percentage of common stocks held by the members of the board of directors⁵. Such metric measurement is important in the ‘simultaneous equation model’ of the paper, as the endogenous variables should not be non-metric so as to violate the assumption of normality in hypothesis testing of the simultaneous model.

With respect to explanatory variables in the board ownership equation, the first variable is the other endogenous variable in the simultaneous equations system measuring firm’s financial performance, Tobin’s Q or ROA. INST-SHARE denotes financial institutions’ shareholdings, while GOV-SHARE and PUB-SHARE as government ownership and minority shareholdings, respectively. These are viewed as substitute governance mechanisms to that of board ownership. Therefore, we predict a negative association of the above types of ownership variable with board ownership of the firm. BD-SIZE is the total number of directors. Although board of directors’ is regarded as an alternative mechanism of governance in Bangladesh it is board ownership that gives rise to the membership in the board. So, a positive association is expected to hold between them. As before BD-SAL-Ratio denotes remuneration paid to the board members out of operating expense of the firm. Compensation of board members may be termed as complementary variable to board ownership in the firm’s incentive structure. Accordingly, we anticipate a negative association between them. CEO-CHAIR-DUAL DUM and CEO-TENURE are variables mentioned before in the performance equation. The relationship between them and board ownership is expected to be positive.

We include several additional variables in the board ownership equation being the firm’s age, size, risk, investment, liquidity and leverage. FIRM-AGE is firm’s age from its incorporation as a public limited company. A firm’s growth potential, board ownership, size etc. may vary systematically according to the age of the firm. Some studies assume that with the passage of time large shareholdings by individuals or families decline, while others indicate an increase for high growth firms. Here, we predict a negative relation between firm age and board ownership.

⁵ Preferred stock is not available for the sample periods and stock-option has never been practiced in Bangladesh listed firms.

As mentioned earlier, DEBT-Ratio is the proportion of debt to total assets of the firm. Since debt is a potential alternative governance mechanism, larger values of debt are expected to be associated with lower share ownership by board members, because the monitoring capability of creditors may discourage board members to entrench themselves through share ownership. Stulz (1988) presents an opposing argument, that board members of highly levered firms might hold a higher fraction of equity to protect their voting control/rights. Anyway, this study expects a positive effect more plausible for board ownership considering the corporate practice in Bangladesh.

Apart from the above variables, a number of control variables are also included to show their effect on board ownership of the firm. LOG-ASSETS is the firm size. Larger firms incur more costs in equity investment of a controlling shareholding due to higher price of a given fraction of firms' share. Again, managerial resources are not abundant rather constraint for investment in shares. So, a negative impact of firm size on board ownership is expected. As a firm-specific attribute, INVEST-Ratio has a positive effect on board ownership. PROFIT-VOLATILE is the business risk measured by the standard deviation of return on equity. As a measure of uncertainty or instability or 'noisiness', it is positively correlated with ownership (Demsetz and Lehn, 1985). The reason is noise increases the severity of agency problem that is partially minimized through large shareholdings. So, we expect a positive effect of this variable with board ownership. LIQUIDITY-Ratio is the liquidity position of the firm measured by cash flow to assets. The higher is a firm's free cash flow the higher is the desired level of managerial ownership (Jensen, 1986). Here, a positive effect is anticipated for board ownership.

4.2 Data

The data for this study is obtained from all Bangladesh firms listed on the Dhaka Stock Exchange (DSE) for the period 1995 through 2001. The main performance data was obtained from the on-line 'DataStream' facility while other firm level data were collected by hand from the company 'annual reports' for the respective years. A number of firms share price data was not available in DataStream and was therefore collected from the 'Dhaka Stock Exchange Monthly Review'. Numerous firms are excluded from the sample as they ceased trading during the period, had negative

equity or had missing data. This resulted in a total unbalanced pooled sample size of 660 observations over the 7 years (1995–2001).

Table- 1 reports descriptive statistics for the variables used in the model. The mean (median) of Tobin's Q is 1.157 (0.989), higher than or closer to 1 (one). This indicates that the growth prospects of the sample firms are favourable, however, the magnitude of the mean (median) of ROA is relatively low at 0.081 (0.08). Again, the average board shareholding in terms of mean (median) is 0.387 (0.477), which is relatively higher than any developed economy.

Table 1**Summary of statistics of governance and financial characteristics**

Variable	Mean	Median	S.D.	Minimum	Maximum
TOBIN'S Q	1.157	0.989	0.714	0.07	7.46
ROA	0.081	0.080	0.066	-0.45	0.36
BD-SHARE	0.387	0.477	0.195	0.00	0.982
BD-SAL (Tk mill.)	0.912	0.420	1.461	0.00	11.41
BD-SAL-Ratio	0.043	0.021	0.060	0.00	0.33
BD-SIZE	8.27	6.00	6.144	3	37
NON-EXE-DIR-Ratio	0.673	0.80	0.292	0.00	0.97
INST-SHARE	0.183	0.169	0.111	0.001	0.581
PUB-SHARE	0.307	0.306	0.151	0.009	0.788
GOV-SHARE	0.028	0.00	0.112	0.00	0.66
CEO-DUM (no. of cases)	515				
CEO-TENURE	10.35	9.00	7.183	1	31
CEO-CHAIR-DUM (no. of cases)	263				
EPS (Tk)	22.281	11.321	53.40	-152.71	657.37
DPS (Tk)	8.936	4.75	11.672	0.00	100.34
FIRM-AGE	14.84	14	8.176	1	43
BIG-4 AUDIT-DUM (no. of cases)	224				
DEBT (Tk mill.)	779.609	241.485	2622.151	1.20	35242.74
DEBT-Ratio	0.572	0.587	0.216	0.01	1.00
INVEST (Tk mill.)	39.022	6.595	149.284	0.00	2724.97
INVEST-Ratio	0.053	0.017	0.010	0.00	0.87
ADVER (Tk mill.)	3.249	0.37	14.525	0.00	199.58
ADVER-Ratio	0.005	0.001	0.018	0.00	0.20
CASH FLOW (Tk mill.)	49.543	24.255	86.547	-95.71	701.81
LIQUIDITY-Ratio	0.066	0.06	0.07	-0.41	0.65
SALES (Tk mill.)	585.45	245.05	1673.521	1.17	20010.11
ASSETS (Tk mill.)	1079.175	399.05	2767.19	9.00	36370.94
EARN-VOLATILE	0.092	0.016	0.93	0.00	22.55
PROFIT-VOLATILE	0.149	0.015	1.716	0.00	35.42

The mean (median) of institutional shareholding is 0.183 (0.169), the mean Government shareholding is below 3% and the mean minority shareholding is at approximately 30%. Similar to the findings of research in other jurisdictions, the average board size is 8. Non-executive directors comprise about two-third of the board. The average board salary including CEO is close to Tk.1 million, which represents about 4% of operating expenses. Information about CEO suggests that about 78% of CEOs are shareholders or owners of the firm, either the

founder/descendants or family representative. Average CEO-tenure is 9 to 10 years, which is high given that the average firm age is between 14 to 15 years. Approximately 40% of the sample firms have a Chairman who is also the CEO. Finally, nearly one-third of the firms have a Big-4 affiliated audit firms. The mean debt ratio of the sample firms is close to 60% while capital expenditure is about 5% of total assets. R&D and advertisement expenditures are low. The mean firm liquidity (cash flow) ratio is also low, ranging between 6-7% of total assets.

5. Results

Tables 2 and 3 present the results of the 2-SLS and OLS regression models. For comparative purpose, we have presented OLS estimates for the two regression equations. It is noted that the relationship between board ownership and performance under OLS framework is not supported by 2-SLS framework, consistent with prior literature. This is due to the ‘endogeneity’ of board ownership and financial performance of the firm.

Table: 2
Determinants of log Tobin's Q and Board Shareholdings

Variables	Log Tobin's Q (OLS)	Log Tobin's Q (2-SLS)	Board Share (OLS)	Board Share (2-SLS)
CONSTANT	-.055 (-1.055)	-.076 (-1.367)	.724 (17.418)***	.702 (13.010)***
BD-SHARE	-.116 (-2.722)***	-.054 (-.796)		
LOG TOBIN'S-Q			-.172 (-5.306)***	-.846 (-6.538)***
FINST-SHARE	-.588 (-3.014)***	-.581 (-2.972)***	-.531 (-10.411)***	-.624 (-9.160)***
(FINST-SHARE) ²	.934 (2.224)**	.974 (2.308)**		
PUB-SHARE			-.356 (-9.241)***	-.414 (-8.120)***
GOV-SHARE			-.448 (-8.202)***	-.521 (-7.246)***
BD-SIZE			.004 (4.046)***	.003 (2.355)**
NON-EXE-DIR-Ratio	.011 (.428)	.008 (.306)		
BD-SAL1 (up to Tk. .15 m)	.564 (3.381)***	.559 (3.339)***		
BD-SAL2 (Tk. .15-.75 m)	-.096 (-2.310)**	-.087 (-2.071)**		
BD-SAL3 (over Tk. .75 m)	.019 (2.929)***	.021 (3.091)***		
BD-SAL-Ratio			-.436 (-4.523)***	-.112 (-.810)
CEO-DUM	.063 (2.877)***	.057 (2.541)***		
CEO-CHAIR-DUM	.013 (.829)	.009 (.540)	.068 (5.619)***	.062 (3.953)***
CEO-TENURE	-.003 (-2.888)***	-.003 (-3.018)***	.007 (7.392)***	.003 (2.238)**
FIRM-AGE			-.007 (-8.817)***	-.004 (-3.451)***
BIG-4 AUDIT-DUM	.064 (4.092)***	.067 (4.234)***		
DPS	.002 (3.796)***	.002 (3.660)***		
DEBT-Ratio	.167 (4.888)***	.160 (4.615)***	.086 (2.953)***	.218 (4.882)***
LOG-SALES	-.019 (-1.370)	-.017 (-1.260)		
LOG-ASSETS			-.061 (-5.416)***	-.081 (-5.364)***
INVEST-Ratio	.147	.148	-.109	-.014

ADVER-Ratio	(2.108)** 1.931 (4.850)***	(2.118)** 2.024 (4.980)***	(-1.965)**	(-.183)
EARN-VOLATILE	-0.008 (-1.159)	-0.008 (-1.145)		
PROFIT-VOLATILE			.006 (2.019)**	.012 (2.789)***
LIQUIDITY-Ratio			-.166 (-1.997)**	.370 (2.549)***
N	660	660	660	660
Adj. R ²	.187	.1798	.540	.4228
F-statistic	9.929***	9.499***	56.264***	35.477***

*** Significance at 1% confidence level using two-tailed test.

** Significance at 5% confidence level using two-tailed test.

* Significance at 10% confidence level using two-tailed test.

Table: 3
Determinants of ROA and Board Shareholdings

Variables	ROA (OLS)	ROA (2-SLS)	Board Share (OLS)	Board Share (2-SLS)
CONSTANT	.019 (1.028)	.013 (.682)	.735 (17.242)***	.758 (16.930)***
BD-SHARE	.011 (.733)	.029 (1.213)		
ROA			-.168 (-1.157)	-1.040 (-2.720)***
FINST-SHARE	-.202 (-2.898)***	-.120 (-2.865)***	-.517 (-9.848)***	-.564 (-9.859)***
(FINST-SHARE) ²	.444 (2.961)***	.456 (3.026)***		
PUB-SHARE			-.349 (-8.781)***	-.384 (-8.885)***
GOV-SHARE			-.436 (-7.801)***	-.474 (-7.972)***
BD-SIZE			.004 (3.971)***	.003 (2.739)***
NON-EXE-DIR-Ratio	-.002 (-.259)	-.003 (-.355)		
BD-SAL1 (up to Tk. .15 m)	.078 (1.312)	.077 (1.282)		
BD-SAL2 (Tk. .15-.75 m)	-.039 (-2.608)***	-.036 (-2.404)**		
BD-SAL3 (over Tk..75 m)	.007 (3.145)***	.008 (3.265)***		
BD-SAL-Ratio			-.515 (-5.302)***	-.497 (-4.965)***
CEO-DUM	.019 (2.400)**	.017 (2.126)**		
CEO-CHAIR-DUM	-.004 (-.786)	-.006 (-.982)	.069 (5.573)***	.065 (5.135)***
CEO-TENURE	-.001 (-2.017)**	-.001 (-2.127)**	.008 (8.255)***	.008 (7.232)***
FIRM-AGE			-.008 (-9.460)***	-.007 (-7.876)***
BIG-4 AUDIT-DUM	.004 (.674)	.005 (.838)		
DPS	.001 (6.185)***	.001 (6.058)***		
DEBT-Ratio	-.017 (-1.414)	-.019 (-1.554)	.061 (2.033)**	.104 (2.946)***
LOG-SALES	.026 (5.396)***	.027 (5.453)***		
LOG-ASSETS			-.056 (-4.874)***	-.055 (-4.643)***
INVEST-Ratio	.036	.036	-.137	-.153

ADVER-Ratio	(1.447) .696 (4.893)***	(1.456) .723 (4.982)***	(-2.417)**	(-2.622)***
EARN-VOLATILE	-.010 (-3.758)***	-.010 (-3.745)***		
PROFIT-VOLATILE			.005 (1.527)	.004 (1.310)
LIQUIDITY-Ratio			-.170 (-1.205)	.520 (1.657)*
N	660	660	660	660
Adj. R ²	.219	.2196	.521	.5094
F-statistic	11.877***	11.906***	52.188***	49.882***

*** Significance at 1% confidence level using two-tailed test.

** Significance at 5% confidence level using two-tailed test.

* Significance at 10% confidence level using two-tailed test.

Table- 2 provides the 2-SLS estimates for Tobin's Q as the performance measure. The system adjusted R-squares are 17.98% and 42.28%, respectively for the performance and board shareholdings equations. Generally the signs of the coefficients for the independent variables are as expected but with a few notable exceptions. In the 2-SLS model of the performance equation, the main variable of interest, board ownership, is not found to have a significant impact on firm performance (Tobin's Q). However, board ownership has as highly significant negative relation with performance in the OLS regression. This difference between the 2-SLS and the OLS result is consistent with previous studies. Testing of the determinants of board ownership reveals a significant negative relation between Tobin's Q and board ownership in both the 2-SLS and OLS regressions. This provides support for the endogeneity of board ownership showing a 'reverse causality' of relationship, i.e. firm's financial performance determines the level of board ownership rather than vice versa.

Table- 3 reports the results for the same models with ROA as the proxy for firm performance. The adjusted R-squares are 21.96% and 50.94%, respectively for the performance and board shareholdings 2-SLS equation. Similar to the results reported in Table 2, strong support is found for the 'reversal causality' relationship between board ownership and performance. The 'reverse causality' relationship with a negative sign is fully consistent with the findings of Loderer and Martin (1997) and Demsetz and Villalonga (2001). Such causality is also showing similarity with the

study of Cho (1998), and Bohren and Odegaard (2001). The only difference is the sign, which is positive in these studies as against negative of our study.

As the direction of causality drives from performance to board ownership, it follows that there will be decrease in board ownership where firms are performing well and vice versa. This can be explained as arising from board members selling shares during good times (i.e. at high Q ratios or ROA) expecting that good performance will be followed by poorer performance; or due to liquidating a part of stockholdings to generate capital gain for having their human capital more firm-specific; or due to the presence of creditor's monitoring the performance (Loderer and Martin, 1997; Demsetz and Villalonga, 2001). Again, this negative relation rejects the possibility that managerial/board ownership is higher when the costs of shareholders monitoring are higher in firms with greater investment opportunities (Smith and Watts, 1992).

Apart from the above, 2-SLS regressions indicate that the relation between performance (log Tobin's Q, ROA) and institutional shareholdings is also non-linear. Institutional shareholdings' has significantly negative impact on all performance measures initially and then turn into significantly positive effect. The point of inflection is, respectively, 29.83%, and 13.16% for Tobin's Q, and ROA model (Table- 2 and 3) derived at dividing the coefficient of institutional shareholding by twice of the coefficient of square root of institutional shareholding. The inflection point is the percentage of institutional equity ownership at which the value of Tobin's Q or ROA reaches its maximum in the estimated regressions. The above point of inflection suggests that the institutions start monitoring the firm once they have substantial stakes in it. While the mean (median) shareholdings by institutions is around 18% (17%), these turning points suggest that they do not actively monitor firm's management/board behaviour up-to their ownership below the 30% (for Tobin's Q) or 13% (for ROA) of the firms' outstanding shares. However, they turn into active monitor once their ownership level crosses the above ranges. Again, Board composition seems to be an important determinant of financial performance in the literature. In our 2-SLS regressions, non-executive directors to board size ratio shows no significant relation with performance in Tobin's Q as well as ROA model. This implies that non-executive directors have no particular effect on performance i.e. even though non-executive directors possess two third portion of the board they are

irrelevant in Bangladesh listed firms in influencing firm value. Due to the strong presence of founder CEO or family dominance, board of directors are ineffective in general in firms in Bangladesh with some exceptions.

The relationship between performance (log Tobin's Q, ROA) and board salary is non-linear in 2-SLS regression estimates. Board salary includes CEO salary, which constitutes majority portion of board salary. The 3 piecewise (or spline) variables for board salary show significant non-linear relation with performance: in log Tobin's Q, it has positive effect when salary range is up to Tk. 0.15 million (US\$2500), then negative between Tk. 0.15 – Tk. 0.75 million (US\$2500-\$12500) and again positive for board salary over Tk. 0.75 million (US\$12500). ROA model presents U-shaped non-linear relation, slightly different from Tobin's Q model with respect to first spline. The above results suggest that on average firms paying more than US\$12500 board remuneration can align board interest with that of minority shareholders. This is just opposite for firms paying less than US\$12500 to US\$2500 range. However, for firms, probably smaller ones, paying less than US\$2500 are showing positive performance effect. Therefore, incentive alignment of board salary depends on the size of the firm and the sensitivity of directors and CEOs for their remuneration.

With respect to CEO related variables, both the Tobin's Q and ROA models show similar findings in 2-SLS estimates. CEO dummy is significantly positive with all performance models (Tobin's Q and ROA) as against our expectation. This indicates that CEOs might have owner-specific attributes (entrepreneurial ability or talents) that contribute toward firm's value enhancement. Besides, some family representatives' CEOs are keen to build family reputation by improving firm performance. Similarly, CEO-chair duality dummy also represents family grip over the firm and negative relationship is expected. The coefficients for CEO-chair duality dummy do not show a significant relation in either of the performance models. As for CEO tenure, the relation with performance in both models is significantly negative as expected. It means longer CEO tenure is value destructive due to entrenchment effect or more reliance on CEO human capital rather than incentive alignment. Thus, these three founder family/sponsor owner related variables indicate that even if owner-CEO seem to be value enhancing, but such enhancement erodes for longer tenure of CEO or even become value destroying.

Our 2-SLS regression estimates indicate that a Big-4 affiliated audit firm has a positive performance effect in Tobin's Q model. However, no significant effect was found in ROA model. The positive performance effect implies that good audit quality with the help of a Big-4 affiliated audit firm can discipline discretionary behaviour of the insider/board members and bring confidence of outside investors. The general accounting and auditing practice in corporate firms in Bangladesh is unhealthy despite the existence of accounting and auditing standard and code of ethics in line with IAS. An unexpected axis of malpractice is commonly found between the management/board and the external audit firm/auditor in preparing the accounting and financial statements of the firm to hide the real performance and deceive the investors. The positive performance effect of big-4 affiliated audit firms highlights the need for adopting quality accounting and auditing practices to ensure healthy atmosphere of the firm and its performance as a whole.

As a variable of financial policy of the firm, dividend per share (DPS) shows significantly positive relation with performance in both 2-SLS Tobin's Q and ROA model. In Bangladesh dividend is treated as a measure of performance of the firm by the general investors, and that is important for regulators (e.g. SEC of Bangladesh) as well. Small investors are interested in or willing to pay higher price for firms that pay dividend regularly. Therefore, dividend payment serves as a signal of better governance or high quality firm in Bangladesh. Again, another financial policy variable, debt/leverage ratio has significant positive relationship with log Tobin's Q, while no significant relation with ROA. The positive impact of debt on log Tobin's Q model is consistent with agency theory in its role to mitigate conflict between insiders and outsiders of the firm.

Now, as for control variables, 2-SLS regression results show log sales has significantly positive relation with performance in ROA model but insignificant with negative sign in log Tobin's Q model. Firm size has no effect in market/hybrid based performance measure, but significantly positive relation in accounting-based performance measure (ROA) remains as puzzling. One possible explanation is that high sales volume may lead to increase ROA in general. Again, two discretionary expenditures such as investment and advertising expenditure ratio show significant positive relation with log Tobin's Q. While advertising expenditure indicates positive

performance effect in ROA model, but investment expenditure reveals no significant relation. Investment ratio is a measure of growth prospect of the firm and advertisement expenditure ratio for increasing the sales and market share of the firm. Positive performance effect of both variables in log Tobin's Q model indicates that growing firms are showing high performance. Again, standard deviation of firm's operating income scaled by sales represents the risk-level or earning volatility of the firm. ROA model shows significantly negative performance effect of this variable. Although high sales volume leads to increase ROA of the firm, but higher business risk may endanger firm performance. Again, this variable shows no explanatory power in Tobin's Q model. Overall, the results are mixed.

Considering the board ownership equation in 2-SLS regression estimates, we see that both Tobin's Q and ROA have significant inverse relation with board shareholdings. As mentioned before, this implies that performance determines board ownership and that high performance contributes to decline board ownership of the firm and vice versa. With respect to other variables in board shareholdings equation with Tobin's Q and ROA, as per our expectation institutional, public and government ownership have significant negative influence on board ownership in both performance measures. Again, as desired, board size, CEO tenure and CEO-chair also have positive significant relation with board shareholdings and firm age has negative significant relation. Board salary ratio has significantly negative effect in ROA model as predicted but not in Tobin's Q model. Debt ratio has positive significant effect on board ownership in both Tobin's Q and ROA model. This is as per our expectation that board members of the more levered firms might hold a higher fraction of equity. As for control variables, log assets show significantly negative relation with board ownership in both performance models as anticipated. On the other hand, liquidity ratio exhibits positive significant relation with board ownership in both Tobin's Q and ROA model. But, contrary to our expectation, investment ratio shows negative sign in both performance measures but have significant relation with ROA. Finally, profit volatility has significantly positive relation with board ownership in Tobin's Q model as predicted but not in ROA model.

Now, with regard to the explanatory power of each of the 2-SLS models in Table- 2 and Table- 3 in terms of adjusted R^2 , the evidence clearly shows that the scores of

adjusted R^2 are at moderate level for performance equations, while in ownership equations they are showing far better score level. Comparing similar studies in the literature, the adjusted R^2 in both 2-SLS models are satisfactory. As mentioned before that we use simple/approximate Tobin's Q in its natural log-form as a performance indicator, but our findings remain unchanged using Tobin's Q without natural log⁶. Again, our 2-SLS models do not include any variable such as firm-specific 'industry dummy' and 'yearly dummy' to see if there is any 'fixed-effects' (e.g. fixed-industry effects/between firm variations and fixed-firm effects/within firm variations). This is because such fixed-effect estimation is not capable of resolving endogeneity that derives from causality between ownership and performance.

Both Hermalin and Weisbach (1991) and Himmelberg et al. (1999) focus this issue relying completely on fixed-industry effects and fixed-firm effects, respectively. Although, a few studies in the literature on simultaneous equations approach include 'industry dummy' in their model but none of them includes 'yearly dummy'. Following those few studies, while running 2-SLS regressions including industry dummy variable we find that the degree of significance of the parameter estimates and R^2 are fairly close to that of original performance (log Tobin's Q and ROA) and board ownership equations and no significant industry-effect in the former equation but in the latter, similar to their corresponding OLS regressions⁷. Again, following the literature we do not try yearly dummy variable into our 2-SLS regressions. Mathiesen (2002) contends that fixed-firm effect estimation is incapable of handling endogeneity (i.e. causality) that arises from simultaneousness between ownership and performance.

Thus, the finding that board ownership has no impact on firm performance and performance has impact on ownership suggests that board members are not in position/decision authority for the presence of dominant family owners or government. Board ownership is one part of a large set of governance control mechanisms undertaken by the firm to reduce agency costs but there are many other alternative mechanisms to handle agency conflicts. So, it is plausible that rather than board ownership other governance mechanisms enhance firm performance in

⁶ For brevity these results are not reported here but available from the author upon request.

⁷ For brevity these results are not reported here but available from the author upon request.

Bangladesh listed firms such as board salary, institutional shareholdings, leverage, Big-4 audit firm etc.

6. Conclusion

This paper has extended the US and other developed country based literature on the relationship between board ownership and firm financial performance in an emerging market economy setting, Bangladesh. There are enormous institutional differences in the corporate governance mechanisms between developed and developing/emerging economies. An analysis of Bangladesh governance systems and institutional settings suggest that it is far behind developed economies in establishing competitive markets, updating and strengthening the legal, judicial and tax systems, enforcing financial discipline, fostering well-regulated securities markets and building professional capacity and transparency etc. as ‘external sources of discipline/control’ for the corporate sector. Existing corporate culture and business practices in Bangladesh offer little incentive for sound corporate governance practices. Despite the differences in governance systems, the empirical results of this paper using simultaneous equations approach (2-SLS regression) confirm the general findings of the US and other developed country based literature that there is a reverse-causality of relationship between board shareholdings and financial performance. This study documents that the ‘reverse-way’ causality between firm performance and board ownership is sufficiently robust to be present in an emerging market economy, Bangladesh. The other findings of this study are consistent with some of the implications of the agency theory.

From estimates of the performance equation, a non-linear relationship between institutional investor shareholding and firm performance suggests the value of the monitoring role of institutions upon acquiring substantial proportion of firm equity. Our findings support both the incentive alignment and entrenchment effect of board salary on performance. They also support the need for prudent financial policy (debt, DPS) and accounting and auditing quality (Big-4 affiliated audit firm) for firms to enhance their performance. We document that there exists little difference between the executing and controlling authority (management vs. board) of the firm. While non-executive directors have no influence on performance, owner CEO has positive performance effect but higher CEO tenure impacts negatively on firm performance.

Among the additional control variables, we find that discretionary expenditures (investment and advertising expenditure ratio) have a positive impact on performance, while firm-specific risk (earning volatility) has a negative impact. From estimates of board ownership equation, our findings suggest that higher firm performance encourages board members to reduce their holdings and vice versa. A plausible explanation for liquidating part of their stockholdings is to recoup a capital gain when they are able to overcome the problem of having their human capital not diversified. CEO tenure, CEO-chairman duality and board size are found to enhance board ownership. Other factors including debt, liquidity ratio and firm risk (profit volatility) are associated with increased board ownership. Firm age, firm size and investment ratio are found to have a negative impact on board ownership.

In conclusion the results of this study support the use of the 2-SLS framework to address the endogeneity problem for board ownership and financial performance as measured by Tobin's Q and ROA. It justifies the suitability of using more sophisticated instrumental regression methods and adopted instruments therein that could generate credible estimations in 2-SLS model design. However, it should be noted that the results are sensitive to the selection of alternative instruments especially given the absence of a stronger theoretical foundation (Bohren and Odegaard, 2001). Bearing this in mind, deeper insight into the board ownership-financial performance relationship is required before further improvements in the statistical methods are possible.

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